CLAIMS

1. A semiconductor device comprising:

an electrode formed of a flat plate portion at a bottom thereof and a cylindrical portion which extends up continuously from the flat plate portion and whose one side is open, wherein a rough-surface grain diameter of an outer surface of said electrode is formed so as to be larger than a rough-surface grain diameter of an inner surface thereof.

- 2. The semiconductor device according to claim 1, wherein a conductor film is formed along the inner surface of said electrode.
- 3. The semiconductor device according to claim 1, wherein the inner side of said cylindrical portion is buried with a conductive film.
 - 4. A semiconductor device comprising:

an electrode formed of a cylindrical portion and a conductive film buried in the inner side of said cylindrical portion, wherein a rough-surface grain diameter of an outer surface of said cylindrical portion is formed so as to be larger than a rough-surface grain diameter of an inner surface thereof.

5. A method of manufacturing a semiconductor device, comprising the steps of:

forming an opening in an interlayer insulating film disposed on a substrate;

forming an amorphous silicon film in a concave form along an inner surface of said opening;

forming silicon growth nuclei on the surface of said

amorphous silicon film;

heat-treating said amorphous silicon film to migrate silicon and thereby polycrystallize said silicon film;

removing said polycrystallized silicon film on said interlayer insulating film; and

removing said interlayer insulating film and forming a cylindrical surface-roughened electrode.

- 6. The method of manufacturing a semiconductor device according to claim 5, further including a step for forming a conductor film in a concave fashion along an inner surface of said polycrystallized silicon film following said migration step.
- 7. The method of manufacturing a semiconductor device according to claim 5, further including the steps of:

forming a second amorphous silicon film in a concave form along an inner surface of said polycrystallized silicon film; and

heat-treating the second amorphous silicon film to migrate silicon and thereby polycrystallize said silicon film following said migration step.

- 8. The method of manufacturing a semiconductor device according to claim 5, further including a step for embedding a conductor inside said polycrystallized silicon film.
- 9. The method according to claim 8, further including a step of removing the bottom of said amorphous silicon film following said amorphous silicon film forming step.
- 10. The method according to claim 5, wherein after said migration step, the polycrystallized silicon film is processed by

silicon etching chemicals.